

Customer No.: 31561  
Docket No.: 10969-US-PA  
Application No.: 10/604,169

### REMARKS

#### Present Status of the Application

The Office Action has rejected claims 1-21 under 35 USC 102 (b) as being anticipated by Balaban et al. (US Patent 4,464,675, hereinafter "Balaban").

After carefully considering the remarks set forth in this Office Action and the cited references, Applicants have amended claims 1, 9, 12, 18, 20, and then canceled claims 5, 10, 13 to more clearly define the claimed invention. It is believed that the foregoing amendments add no new matter to the present invention. Upon entry of the foregoing amendments, claims 1-21 remain pending in the present application. Reconsideration and withdrawal of the Examiner's rejection are respectfully requested.

#### Discussion of the claim rejections under 35 USC 102

*The Office Action rejected claims 1-21 under 35 U.S.C. 102(b), as being anticipated by Balaban et al. (US Patent 4,464,675).*

In response thereto, Applicants have amended claims 1, 9, 12, 18 and 20 to make the pending claims patentably distinguish over the prior art for at least the reasons set forth below. Further, Applicants have also added the limitation of claims 5, 10, 13 to claims 1, 9, 12, 18, 20, and then cancelled claims 5, 10, 13. Thus, reconsideration and withdrawal of this rejection are respectively requested.

Independent claim 1, as amended, recites the following:

1. (currently amended) A band pass filter (BPF) for extracting a desired

Customer No.: 31561  
Docket No.: 10969-US-PA  
Application No.: 10/604,169

frequency band from an input signal that is represented in a sequence of data stream, comprising:

a shift register for receiving the input signal and synchronously moving the input signal data stream through the shift register so that the input signal goes into an input end and comes out from an output end of the shift register, wherein between the input and output ends of the shift register, a segment of the input data is stored, and as the input signal and time go by, the input signal segment stored in the shift register is sliding through a whole input signal spectrum; and

an arithmetic subtracting unit for obtaining a difference between only an input data stored in the output end of the shift register and an input data stored in the input end of the shift register to form an output of the band pass filter, wherein the band pass filter relies on Infinite-duration Impulse Response (IIR) filter design technology and wherein the length of the input signal segment stored in the shift register is determined by a sum of one and an integer part of a ratio of a half of a signal sampling rate of the input signal to a desired band pass frequency.

The Examiner contended that the "desired frequency band/desired band pass frequency" as taught in claims 1-21 of the present invention is "the frequency at the center of the first tooth",  $(15,734/2) \text{ Hz} = 7687 \text{ Hz}$ . However, the above equation for obtaining the frequency is not suitable for all kinds of band pass filters. Based on the specification of the present invention, the further limitation, infinite-duration impulse response (IIR), has been added to the amended claims 1, 9, 12, 18 and 20. Therefore, the amended claims teach a band pass filter that is based on infinite-duration impulse response (IIR)

Customer No.: 31561  
Docket No.: 10969-US-PA  
Application No.: 10/604,169

**filter design technology.** In other words, the “desired frequency band/desired band pass frequency” of an **IIR based band pass filter** disclosed in the amended claims 1, 9, 12, 18 and 20 of the present invention is not necessarily the frequency at the center of the tooth. As shown in FIG. 6 of the present invention, the target frequency applied to the IIR based band pass filter is 12.5 kHz. More specifically, the target frequency, 12.5 kHz, corresponds to a normalized frequency of 0.25. In other words, the target frequency is not obtained at the center of the tooth. Rather, the target frequency is obtained at a quarter of the tooth. Further, the present invention teaches in the amended claims 1, 9, 12, 18 and 20 determining the length of the input signal segment stored in the shift register by a sum of one and an integer part of a ratio of a half of a signal sampling rate of the input signal to a desired band pass frequency. Therefore, in FIG. 6 of the present invention, the length of registers of IIR based band pass filter is obtained by using the above target frequency for the following calculation:  $[(100/2)/12.5]+1=5$ . Hence, Balaban fails to disclose, teach or suggest at least the features of “the band pass filter relies on Infinite-duration Impulse Response (IIR) filter design technology and wherein the length of the input signal segment stored in the shift register is determined by a sum of one and an integer part of a ratio of a half of a signal sampling rate of the input signal to a desired band pass frequency” that are highlighted in the currently amended claims 1, 9, 12, 18 and 20.

For at least the foregoing reasons, Applicants respectfully submit that independent claims 1, 9, 12, 18 and 20 patently define over the prior art reference, and should be allowed. For at least the same reasons, dependent claims 2-4, 6-8, 11, 14-17, 19 and 21 patently define over the prior art as a matter of law, for at least the reason that

Customer No.: 31561  
Docket No.: 10969-US-PA  
Application No.: 10/604,169

these dependent claims contain all features/elements/steps of their respective independent claims 1, 9, 12, 18 and 20. In re Fine, 837 F.2d 1071 (Fed. Cir. 1988).

Customer No.: 31561  
Docket No.: 10969-US-PA  
Application No.: 10/604,169

CONCLUSION

For at least the foregoing reasons, it is believed that the pending claims 1-21 are in proper condition for allowance and an action to such effect is earnestly solicited. If the Examiner believes that a telephone conference would expedite the examination of the above-identified patent application, the Examiner is invited to call the undersigned.

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Respectfully submitted,

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